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REC'D 20 JAN 2005
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
MON/P100537WO		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/GB 03/04653	29.10.2003	30.10.2002
International Patent Classification (IPC) or both national classification and IPC		
G01N33/543		
Applicant		
PLASSO TECHNOLOGY LTD. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
12.05.2004	20.01.2005
Name and mailing address of the international preliminary examining authority:	Authorized Officer
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB 03/04653

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-16 as originally filed

Claims, Numbers

1-32 as originally filed

Drawings, Sheets

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

   ☐ the language of publication of the international application (under Rule 48.3(b)).

   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority in written form.

   ☐ furnished subsequently to this Authority in computer readable form.

   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   ☐ the description, pages:

   ☐ the claims, Nos.:

   ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	6-10,12-16,21,23-26,28-30
	No:	Claims	1-5,11,17-20,22,27,31,32
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-32
Industrial applicability (IA)	Yes:	Claims	1-32
	No:	Claims	

2. Citations and explanations

   see separate sheet

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1). Present Application

The present application claims (cl.1) a method to immobilise at least one type of carbohydrate molecule by :

i). providing a monomer source
ii). creating a plasma of said monomer
iii). coating a surface with plasma
iv). contacting plasma coated polymer surface with carbohydrate (in its native form)

claims 26-30 refer to the products obtainable by the method of claims 1-20 namely :
- a biosensor
- a therapeutic vehicle
- a sample collection device
- an affinity purification matrix
- a microarray

claim 31 refers to a surface obtainable by plasma polymerisation with a carbohydrate immobilised on it.

The description provides one example by way of support for these claims - the adsorption of heparin on an allylamine coated surface.

2). Clarity, Support, Disclosure and Essential Features

The present application possesses only one example for disclosing the claimed invention and for supporting very broad claims. The scope of these claims are not commensurate with this level of disclosure. Moreover, the claims can be said to be lacking many essential features necessary for the proper functioning of the claimed invention.

More specifically the following clarity points are considered relevant :

Claim 1

- the term "comprising" implies that the scope of protection sought may be increased in some vague and indefinite manner
- the term "monomer source" implies that all monomers are applicable
- the phrase "creating a plasma of said monomer" does not give any details as to how this is achieved - similarly for "coating a surface" - these are pure desiderata or results to be achieved
- step iv). is also a result to be achieved
- the term "native form" is important for assessment of novelty and inventive step. The applicant gives further clarification of it on page 6, lines 14-26. It incudes carbohydrates which are not physically or chemically modified, and that it passively adsorbs onto the plasma polymer treated surface. However, these only appear to be preferred options.

Claims 21-25

- these claims refer to a method, but in reality appear to be product claims - they should be reformulated accordingly - either as a use of the surface as e.g. a biosensor; or directed to the products per se. However, were the second option chosen, it is likely that the products per se will not be novel, since it is not permitted to define them in terms of the manner in which they were produced, moreover, it would be apparently identical to claims 26-30.

Claims 31-32

These claims pertain to a product, which is defined in terms of the process from which it results - i.e. a product by process. This is treated as if the claim is directed to the product per se, regardless by which method it was made.

3). Prior Art and Novelty

Reference is made to the following documents :

D1 : EP - A - 0 124 200
D2 : WO - A - 94 / 10938

D1 discloses heparin attached to a polymer surface which has been activated by treatment with a plasma (p.1, l.1-6). The plasma may be generated typically by ammonia gas.

D2 details a method for modifying a surface such as an implant to provide the surface with anticoagulant activity and resistance to the deposition of plasma proteins. It uses N-vinyl-2-pyrrolidone or allyl alcohol for the plasma polymer. Then the anticoagulant such as heparin is attached to the substrate.

Due to the lack of essential features, and the above mentioned clarity objections, the assessment of novelty is only provisional, and depends upon how and whether the clarity, support and disclosure objections are overcome.

However, in the light of documents D1-D2, claims 1-5,11,17-20,22,27,31,32 lack novelty in the sense of Article 33(2) PCT.

4). Inventive Step

Given the above problems, no definitive opinion is given at this stage. However, it does appear that all the features of the dependent claims are merely routine modifications known to the skilled person, and hence, even those which are novel will not be able to give rise to an inventive step in the sense of Article 33(3) PCT.